Dashboards for Data Use

NTD Data Use Resource Hub

Acknowledgements

We extend our sincere appreciation to the **National NTD programs from seven countries (Benin, Burkina Faso, Ethiopia, Kenya, Nigeria, Senegal, and South Sudan)** for their unwavering cooperation, leadership, and commitment to public health.

We also thank our **in-country implementing partners** for their vital collaboration, operational expertise, and dedication to delivering impactful interventions on the ground. This work would simply not be possible without their collective support—each contribution has been essential to driving progress and improving lives across affected communities

We acknowledge the generous support of the **Gates Foundation (GF)** and the **Children's Investment Fund Foundation (CIFF)**, whose funding has been instrumental in advancing our shared mission to combat neglected tropical diseases (NTDs).

Lastly, we also acknowledge the **World Health Organization's ESPEN platform** for hosting these resources and making them accessible to the global health community, further strengthening transparency, coordination, and knowledge-sharing across regions.

1 NTD DATA USE RESOURCE HUB

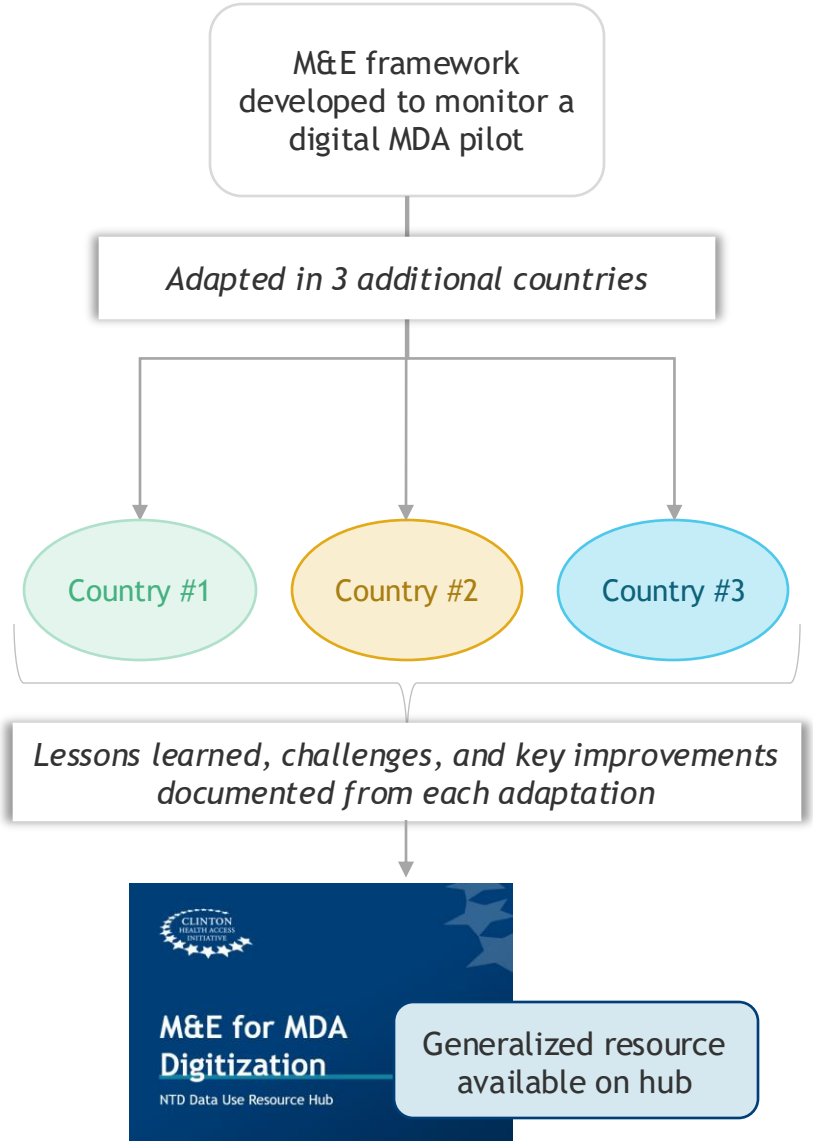
Background: Data use support provided to 6 NTD programs

- In **2021**, CHAI started providing support to **Kenya**, **Benin** and **Nigeria** (Kano) NTD program (2021-2024) with support from BMGF to accelerate elimination of PC-NTDs by:
  - Improving sustainable **access to timely and high-quality information** across relevant levels of the health system.
  - **Capacitating programs** to **routinely use data and generated analytics** such as modeling, integrating it within existing processes and structures.
- In **2022**, the support was expanded to all ARISE countries including **Burkina Faso**, **Ethiopia, Senegal, and South Sudan*** (2022-2025) with support from CIFF and BMGF.
- CHAI staff conducted in-depth country landscaping in 6 countries to identify the specific NTD program data use gaps that were undermining campaign and intervention effectiveness.
- Based on this work, CHAI staff worked in concert with NTD programs and key implementing partners to develop customized solutions to address these key challenges.

- Direct support to 6 countries
- 15 staff embedded in country
- August 2021 – December 2025

**CHAI has no in-country presence in South Sudan. Support consisted of sharing cross-country lessons and deepening engagement through other in-country partners.*

The NTD Data Use Resource Hub: Customized solutions → generalized guidance

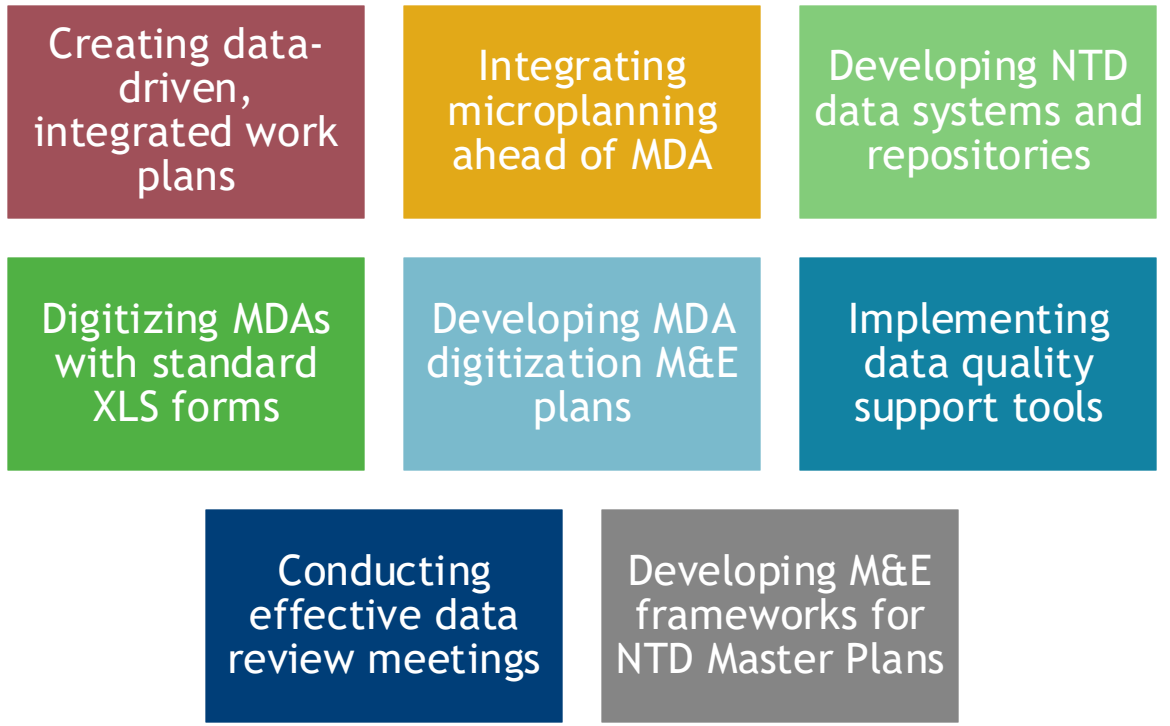


- While solutions were developed for the specific goals and challenges of individual NTD programs supported through the BMGF/CIFF investment, the work revealed **significant overlaps between countries in impactful solutions**.
- Throughout implementation, **CHAI teams actively shared and adapted guidance, templates, and best practices** – showcasing the transferability of learnings and resources across countries.
- To enable broader uptake beyond grant-supported countries, these resources were **standardized and paired with concise "how-to-use" guides** to facilitate adaptation by other NTD programs.
- The tools are designed to **complement existing resources** from the WHO and key NTD partners, with a focus on bridging the gap between technical tools and day-to-day program operations.
- **Emphasis is placed on practicality and usability**: organizing planning meetings, structuring data review discussions, and improving access to and use of routine data without overburdening NTD program staff.

Available resources and intended users

- These tools are designed for NTD program teams—**particularly program managers and M&E officers**—who want to strengthen data use to inform decision-making.
- These resources are designed to help programs **address existing challenges in how they organize, review and use data** for planning and decision-making.
- Each resource includes a brief usage guide to support customization and integration into existing workflows accompanied by generalized templates for adaptation.

Available resources in Hub



The WHO's Roadmap M&E Framework outlines key best practices for managing NTD data. Resources included in the Hub are designed to help programs put those best practices into action.

Available resources in Hub

- Creating data-driven, integrated work plans
- Integrating microplanning ahead of MDA
- Developing NTD data systems and repositories
- Digitizing MDAs with standard XLS forms
- Developing MDA digitization M&E plans
- Implementing data quality support tools
- Conducting effective data review meetings
- Developing M&E frameworks for NTD Master Plans

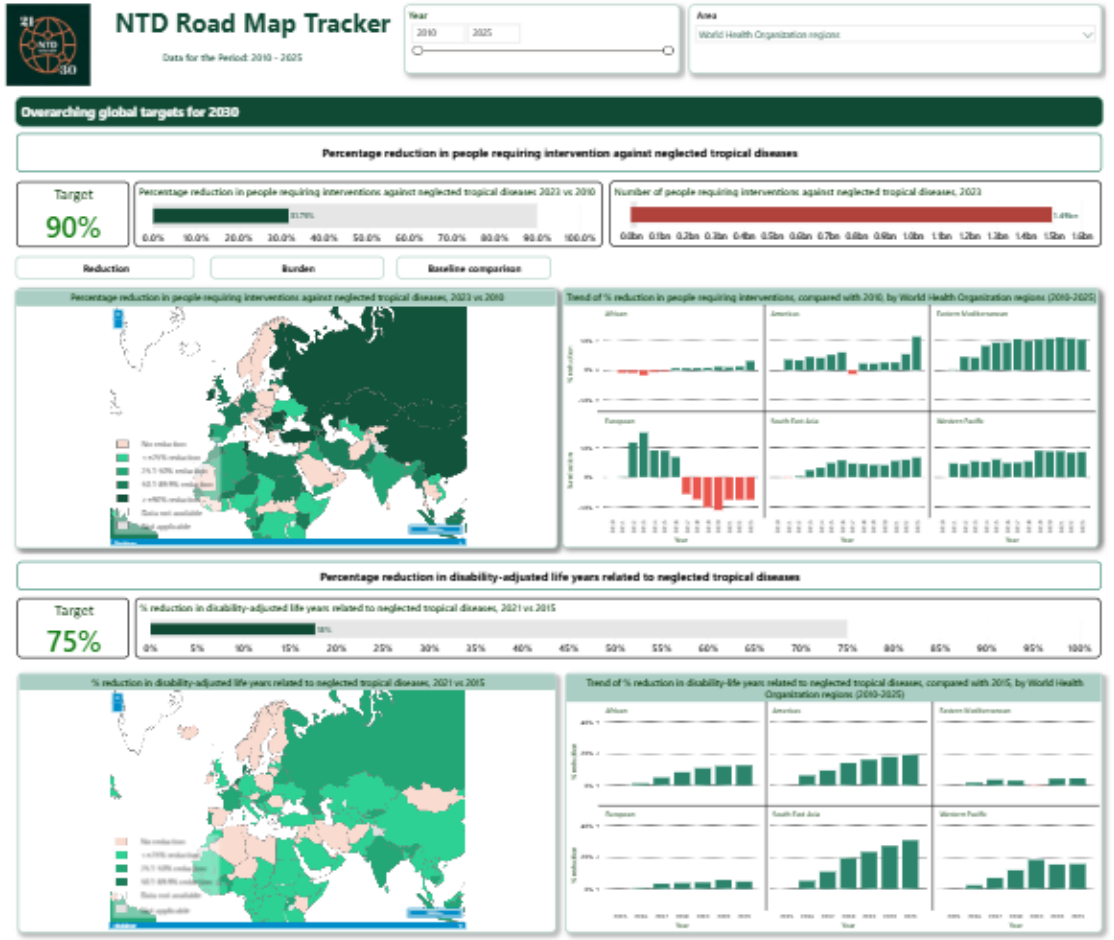
Data collection	• Integrated and standardized disease-specific and cross-cutting indicators and data collection tools • Mainstreamed into health management information system/integrated disease surveillance and response • Disaggregated by age, gender and location • Recorded and reviewed on the same day that collected • Reported to the next level in a timely manner • Supervised collection of data • Digital health platform used for collection
Data storage and aggregation	• Mainstreamed into health management information system/integrated disease surveillance and response • Secured with defined users and access • Updated at regular intervals
Data validation	• Validated at multiple levels with feedback on data quality • Triangulated from various sources • Checked for internal and external consistency • Routine (e.g., during supportive supervision) and period exercises (e.g., coverage evaluation surveys, data quality audits) conducted
Data analysis	• Viewed through the lens of person, time, place to answer 4/5 Ws: "what, where, when, why and how?" • Analysed at multiple levels (community, health facility, district, national, regional, global) • Advanced analyses used to fill public health data gaps
Monitoring progress towards targets	• Progress measured with attention to geographical areas, population groups and trends over time • Progress analysed as to how and why targets are being achieved or not achieved to inform decisions

Source: Box 2, Best practices in NTD data process

2 OVERVIEW

Purpose of this resource: Understand how dashboards can help programs move from data collection to data use

- Dashboards are a means to an end - their purpose is not to look beautiful, but to help stakeholders use data to drive decisions.
- Too often, data is collected but underused because it's not presented in a way that supports action.
- This resource focuses on presenting best practices and common pitfalls to help NTD programs understand the practical aspects of setting up well-designed dashboards that can move the culture from data collection to data use.



WHO NTD Road Map Tracker: Publicizes 2030 progress in a comprehensible and actionable format

This guide is a collection of best practices and lessons learned synthesized from work in CHAI-supported countries on designing and implementing dashboards.

- This resource offers practical guidance on designing dashboards that serve as tools for ongoing data review and use.
- These lessons learned are designed to be adapted to meet program needs. There is no one "right" dashboard: a dashboard that facilitates data use and decision-making is a good dashboard.

Qualities of an effective dashboard	
Functional for all users: Data, design, and platform are tailored to ensure usability across all levels of program staff.	☑
Necessary data included: The dashboard consolidates the key data needed to calculate and display indicators aligned with program priorities.	☑
Clear and easy-to-use design: Visualizations are easy to interpret and intentionally designed to support decision-making.	☑
Hosted on an appropriate platform: Accessible to intended users and integrated with key data systems or sources.	☑
Used for regular data review: Dashboards are relevant to the program's review processes and actively used during data review meetings.	☑

Before beginning dashboard design, reflect on your Data to Action Framework: Dashboards are a critical bridge between data collection and decision-making. They don't replace analysis or action—but they help make both easier and more effective by organizing the right data, at the right time, for the right users.

What are the key decisions that need to be made?

What are the key indicators that will inform these decisions?

What are the data elements required to estimate selected indicators?

Where does the data come from?

How are these indicators analysed and visualised?

How are interpretations and action plans made?

How are actions implemented?

How are actions monitored and evaluated to show change in data use and improvement to impact indicators?

Dashboard-centric activities

3 DASHBOARD DESIGN: LESSONS LEARNED

Dashboards are important tools, but only if designed and implemented well

- Dashboards provide an overview of key performance indicators, metrics, and operational data relevant specific objectives
- A well-designed dashboard will **simplify complex data sets into manageable, digestible information** that users can act upon, by:
  - integrating **multiple data sets in one place**
  - presenting sliced subsets of data **relevant to a user**
  - presenting indicators visually, making it **easier to understand** and act on
  - displaying data **spatially**
  - presenting indicators **over time and against targets**

The value of a dashboard is in its **on-demand accessibility** and ability to change behaviour and **drive incremental, continuous improvements**

Lesson #1: Sometimes it helps to explain what a dashboard is, using a familiar example

When driving a car, people use a dashboard to make key decisions

SITUATION:
You are in the car with your team and you see a police car

REVIEW DATA:
The dashboard says the car is going 220 kilometers per hour!!!

MAKE DECISION:
Slow down!

Lesson #1: Sometimes it helps to explain what a dashboard is, using a familiar example

When driving a car, people use a dashboard to make key decisions

SITUATION:
You are at the last petrol stop for 100 kilometers

REVIEW DATA:
The fuel gage says you still have 3/4 quarters left in your car

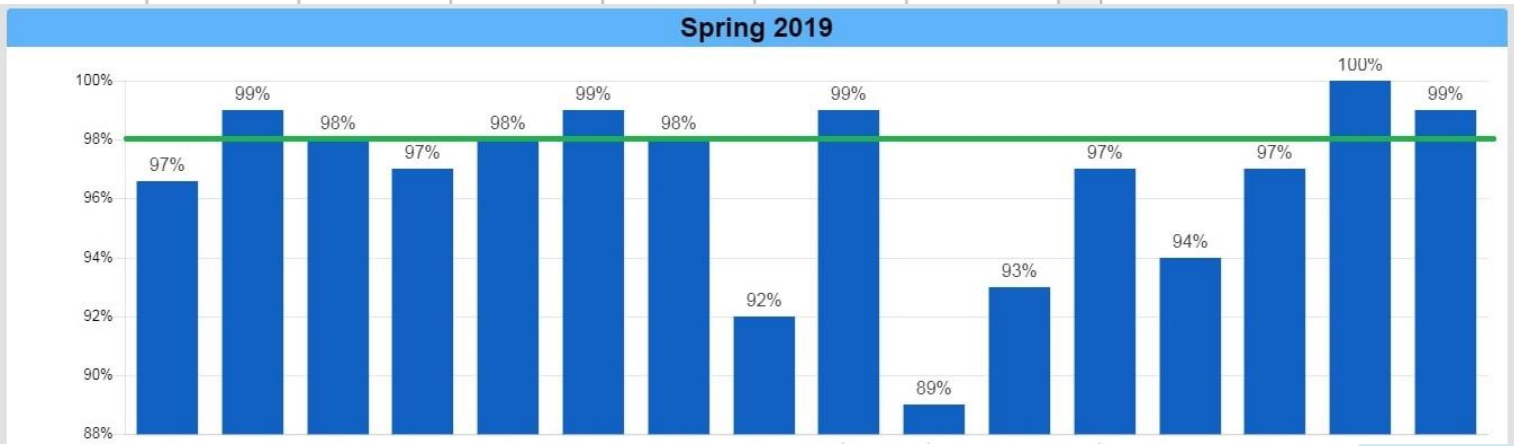
MAKE DECISION:
Do not stop for petrol

Lesson #2: Use visual indicators to draw attention to issues

- Traffic light colors (red = poor, yellow = ok, green = good)
- Threshold or target lines

SCH - Coverage by District - This Year

District	SCH - Total Treated	SCH - Total Targeted	SCH - % Coverage	SCH - Total Targeted Male	SCH - % Coverage Male	SCH - Total Targeted Female	SCH - % Coverage Female	SCH - Target Population 5-14 Years	SCH - % Coverage 5-14	SCH - Target Population 15+ Years	SCH - % Coverage 15+
District 1	9,000	18,000	50.00%	4,300	47.80%	4,700	52.20%	14,000	55.00%	4,000	35.00%
District 2	15,000	22,000	68.20%	7,800	66.70%	7,200	70.60%	18,000	70.00%	4,000	60.00%
District 3	17,000	23,000	73.90%	8,500	72.00%	8,500	75.80%	20,000	76.50%	3,000	55.00%
District 4	26,500	35,000	75.70%	13,500							
District 5	30,000	36,000	83.30%	15,000							
District 6	11,250	15,000	75.00%	5,500							



Lesson #3: Use text boxes to help explain visualizations

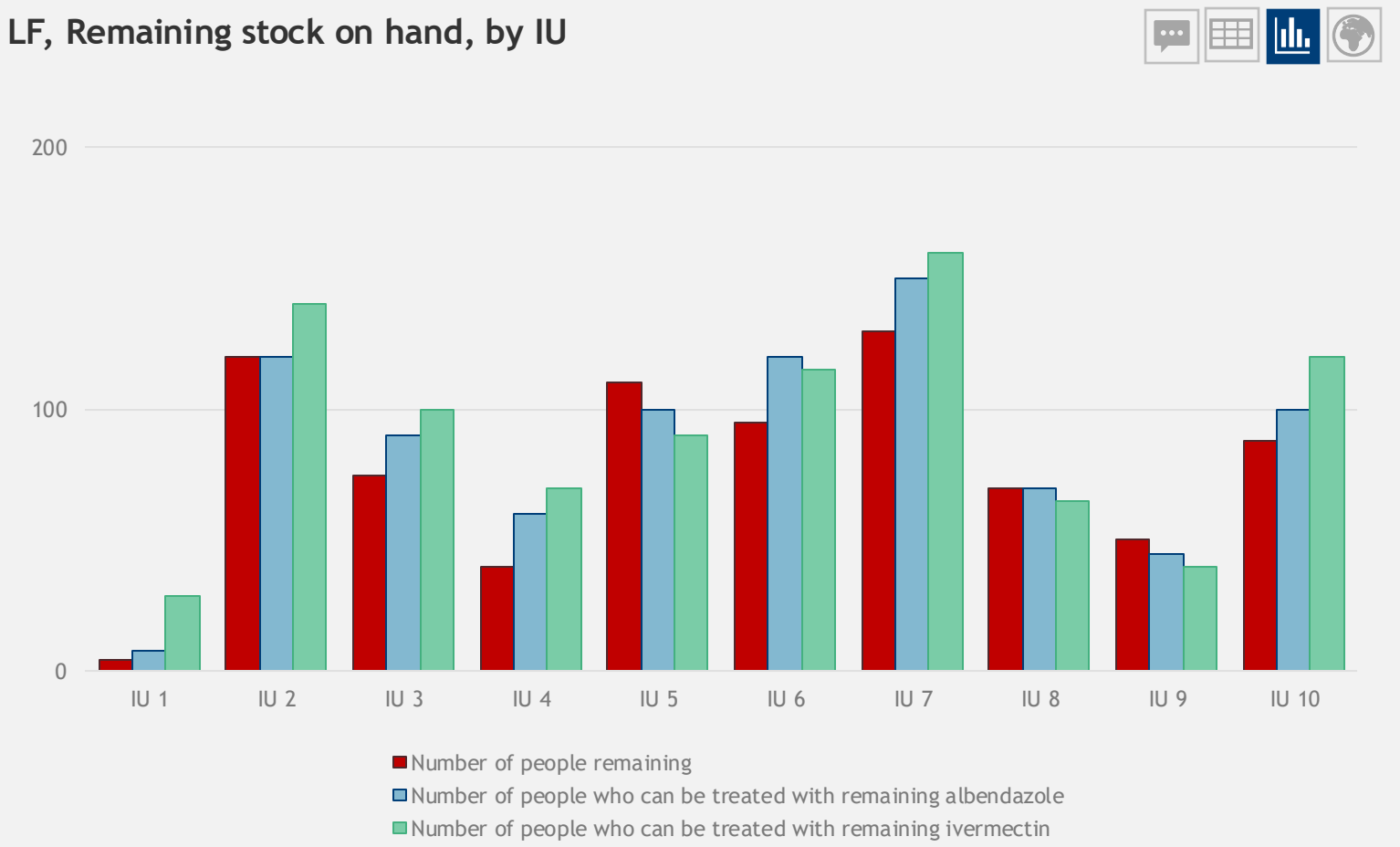
- What does each variable mean?
- What should the user look out for?

PROJECTION OF STOCK REMAINING

1. Red: Number of people remaining to be treated in IU (calculation: target – latest cumulative treatment data)
2. Blue: Number of people who can be treated with remaining albendazole (calculated based on the average normal consumption per person, 1 tablet for albendazole)
3. Green: Number of people who can be treated with remaining ivermectin (calculated based on the average normal consumption per person, 2.8 tablets for ivermectin)

The red bar should be equal to or greater than the blue and green bars.

Use this visual to assess IUs at risk of stock out prior to campaign completion.



Lesson #4: Ensure each variable is labeled so it is clear and intuitive to the user

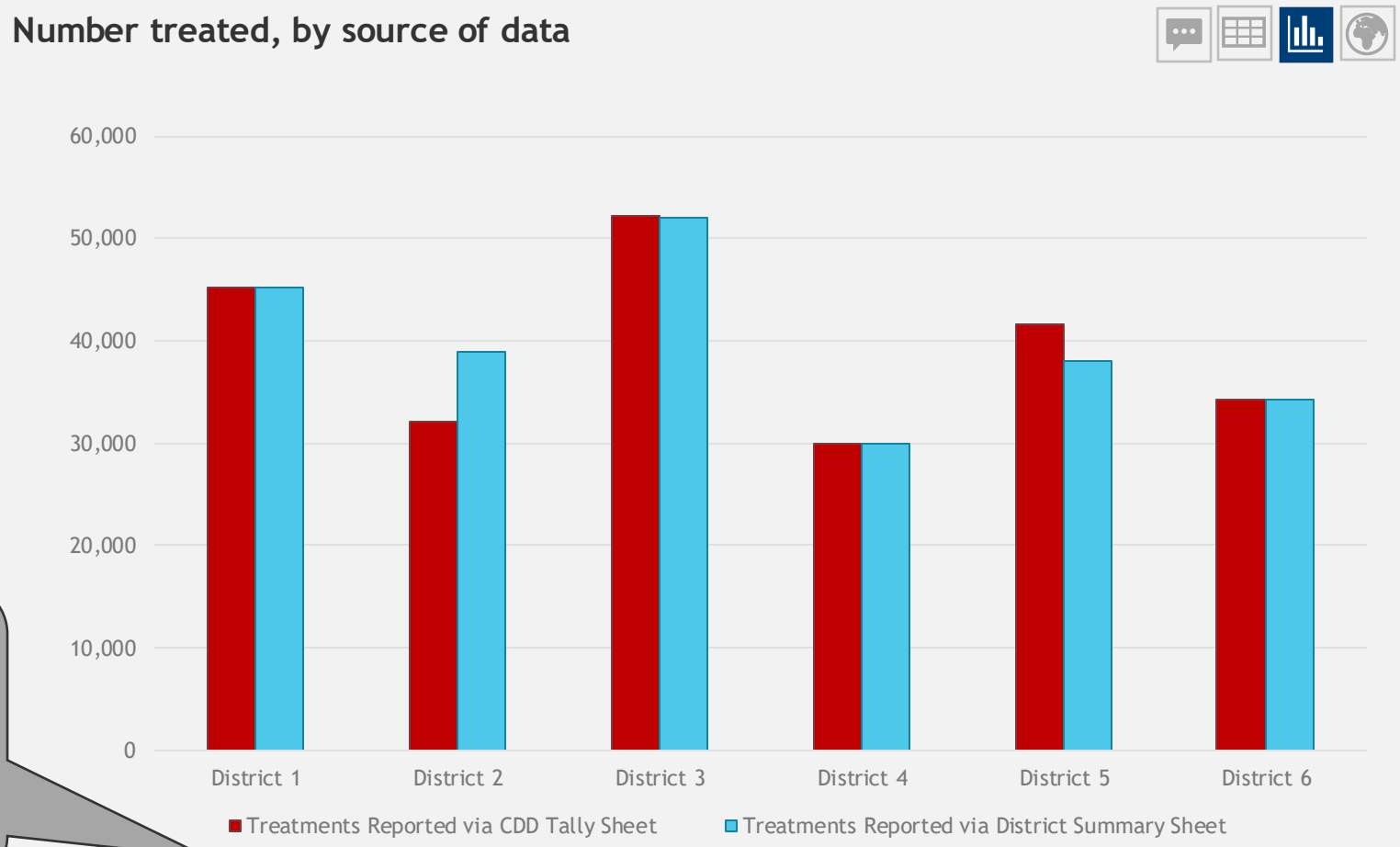
- What does each variable mean?
- What should the user look out for?

REPORTING CONCORDANCE

1. RED: Number of people treated from the CDD tally sheets.
2. BLUE: Number of people reported as treated from the district summary sheet.

The target is for both bars to match.

Use this visual to assess if there are districts with detected data quality issues.



Each data point is clearly labeled to indicate the source the data was derived from.

Lesson #5: Give users access to a data dictionary

Users will rightfully question how indicators are defined, how indicators are calculated, and what the data sources are – give them a handy data dictionary they can always refer to when they have questions or doubts

indicators_name	indicators_description	indicators_denominatorDescription	indicators_numeratorDescription	indicators_numerator	indicators_denominator
SCH - Total treated	Number of individuals who received treatment for SCH this year	Target population for treatment	People treated with praziquantel	#{SCH_Treated}	#{SCH_Targeted}
SCH - % Coverage	Percent of targeted individuals who were treated for SCH	Total targeted population	Total treated population	#{SCH_Treated}	#{SCH_Targeted}
SCH - Total Targeted Male	Total number of males targeted for SCH treatment	-	-	#{SCH_Targeted_Male}	N/A
SCH - % Coverage Male	Percentage of males targeted who received SCH treatment	Male target population	Males treated	#{SCH_Treated_Male}	#{SCH_Targeted_Male}
SCH - Total Targeted Female	Total number of females targeted for SCH treatment	-	-	#{SCH_Targeted_Female}	N/A
SCH - % Coverage Female	Percentage of females targeted who received SCH treatment	Female target population	Females treated	#{SCH_Treated_Female}	#{SCH_Targeted_Female}
SCH - % Coverage 5-14	Coverage among children aged 5–14 years	Targeted population 5–14	Treated population 5–14	#{SCH_Treated_5_14}	#{SCH_Target_5_14}
SCH - % Coverage 15+	Coverage among individuals aged 15+ years	Targeted population 15+	Treated population 15+	#{SCH_Treated_15plus}	#{SCH_Target_15plus}

Lesson #6: Include a data quality dashboard

- Users will always express doubts about the quality of the underlying data
- Providing users with the information they need to assess the quality of data before moving onto other indicators will either 1) help remove doubt or 2) help focus responses on addressing poor data quality, which is an important first step

Concern	What does dashboard need to show
"We treated more SAC than what this graph shows, I don't trust the data"	1. Which schools have not reported? 2. Which schools have reported, but quality is low?
"We had higher MDA coverage than what this graph shows, I don't trust the data"	1. Which CDDs are we missing data for? 2. Is reporting high but data quality low?
"This indicator doesn't make any sense, I don't think it is calculating correctly"	1. What forms does indicator calculate from? 2. How is indicator calculated?

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Reporting rates

Reporting timeliness

LF - ALB Tablet Accountability - This Year

District	LF - ALB - Beginning Balance	LF - ALB - Total Tablets Administered	LF - ALB - Stock Balance	LF - Total Expected Stock Reports	LF - Total Received Stock Reports	LF - Total Received Stock Reports On Time	LF - Stock Reporting Rate	LF - Timely Stock Reporting Rate
District 1	120,000	98,450	21,300	20	19	19	95.00%	95.00%
District 2	85,000	76,800	8,100	18	17	15	94.40%	83.33%
District 3	102,500	97,900	4,000	22	21	20	95.50%	90.91%
District 4	110,000	92,300	17,100	20	18	18	90.00%	90.00%
District 5	76,300	70,750	5,200	16	15	14	93.80%	87.50%
District 6	93,800	88,000	5,500	19	19	14	100.00%	73.68%

Lesson #7: Design for users at each level of the health system / hierarchy

SCH - Coverage by District - This Year

District	SCH - Total Treated	SCH - Total Targeted	SCH - % Coverage	SCH - Total Targeted Male	SCH - % Coverage Male	SCH - Total Targeted Female	SCH - % Coverage Female	SCH - Target Population 5-14 Years	SCH - % Coverage 5-14	SCH - Target Population 15+ Years	SCH - % Coverage 15+
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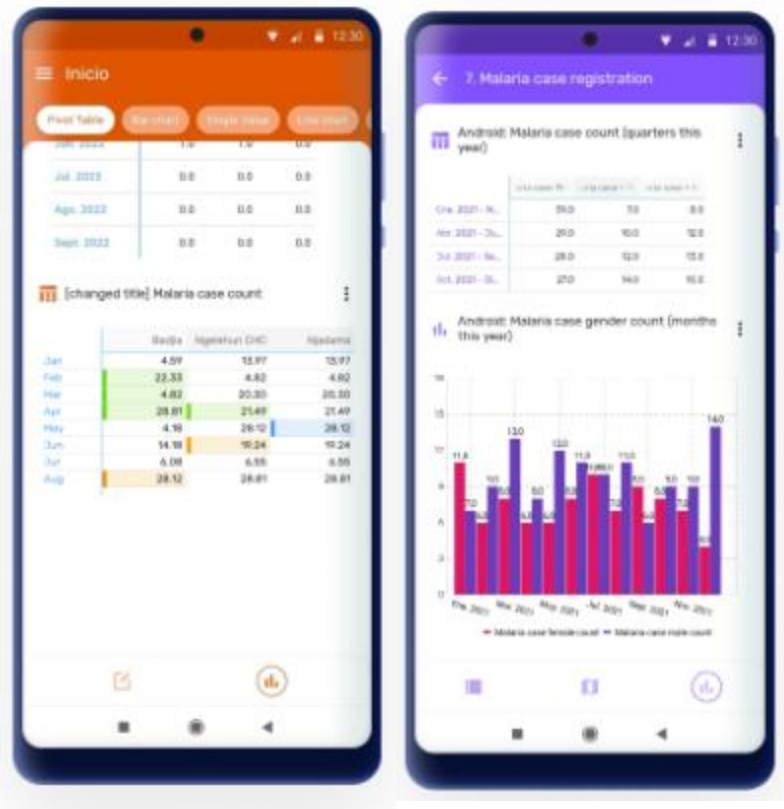
District 4	26,500	35,000	75.70%	13,500	75.00%	13,000	76.50%	30,000	78.00%	5,000	65.00%
District 5	30,000	36,000	83.30%	15,000	83.30%	15,000	83.30%	31,000	85.00%	5,000	72.00%
District 6	11,250	15,000	75.00%	5,500	73.30%	5,750	76.70%	13,000	78.00%	2,000	60.00%

Looking at data by district may be fine for a national or county level user, but a district level user might only see a single row for their own district

A district level user needs to see their own data disaggregated at a level relevant for making decisions within their district - e.g. village level, health facility level

Lesson #8: Don’t neglect the lowest levels or let poor connectivity get in the way - use mobile dashboards and offline reports



The DHIS2 mobile app allows for in-app dashboards that work offline. Dashboard tools like PowerBI, Tableau and Looker also have mobile compatibility.

Lepre		Dengue	Filariose Lymphatique		
Taux de guérison MB (cohorte année n-2)	Nombre de nouveaux cas de lèpre chez les enfants de moins de 15 ans	Létalité de la dengue	Couverture therapeutique du Traitement De Masse (TDM) contre FL	Taux de réalisation des cures hydrocèles	Nombre de patients atteints de lymphoedemes
⬆89.77%	14	0.38%	⬆79.46%	⬇72.00%	10,231
⬆100.00%	0	0.40%	0.00%	⬇38.54%	456
⬇33.33%	0	0.00%	0.00%	⬇76.00%	194
⬆80.95%	2	0.31%	0.00%	⬇80.85%	157
⬆88.00%	3	0.69%		⬇38.13%	2,838
⬆80.00%	0	0.59%	0.00%	⬇60.55%	400
⬆96.10%	1	0.06%	0.00%	⬇80.00%	390
⬆100.00%	0	0.64%	0.00%	⬇100.00%	504
⬆100.00%	2	0.25%	0.00%	⬇100.00%	1,430
⬆83.33%	0	1.07%	0.00%	⬇100.00%	198
100.00%	1	0.31%	0.00%	⬇97.37%	173
⬆100.00%	1	0.00%	0.00%	⬇100.00%	396
⬆100.00%	0	0.70%	0.00%	100.00%	89
⬆100.00%	4	0.00%	79.46%	⬇47.78%	30
DHIS2	DHIS2	DHIS2	Rapport TDM	DHIS-2	Rapport programme

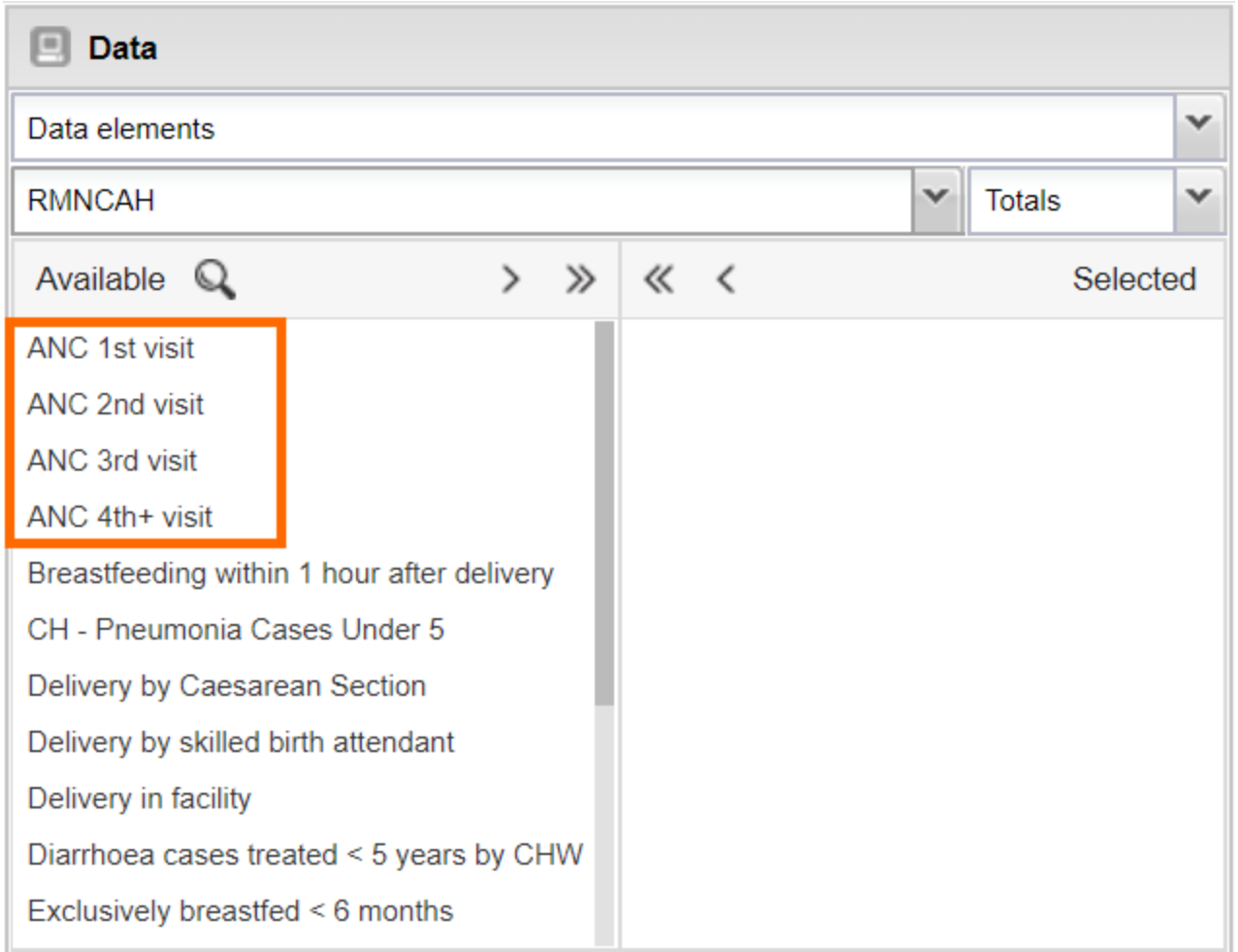
Dashboards snapshots and static bulletins can also be designed and scheduled to automatically be sent to a target audience at scheduled frequencies

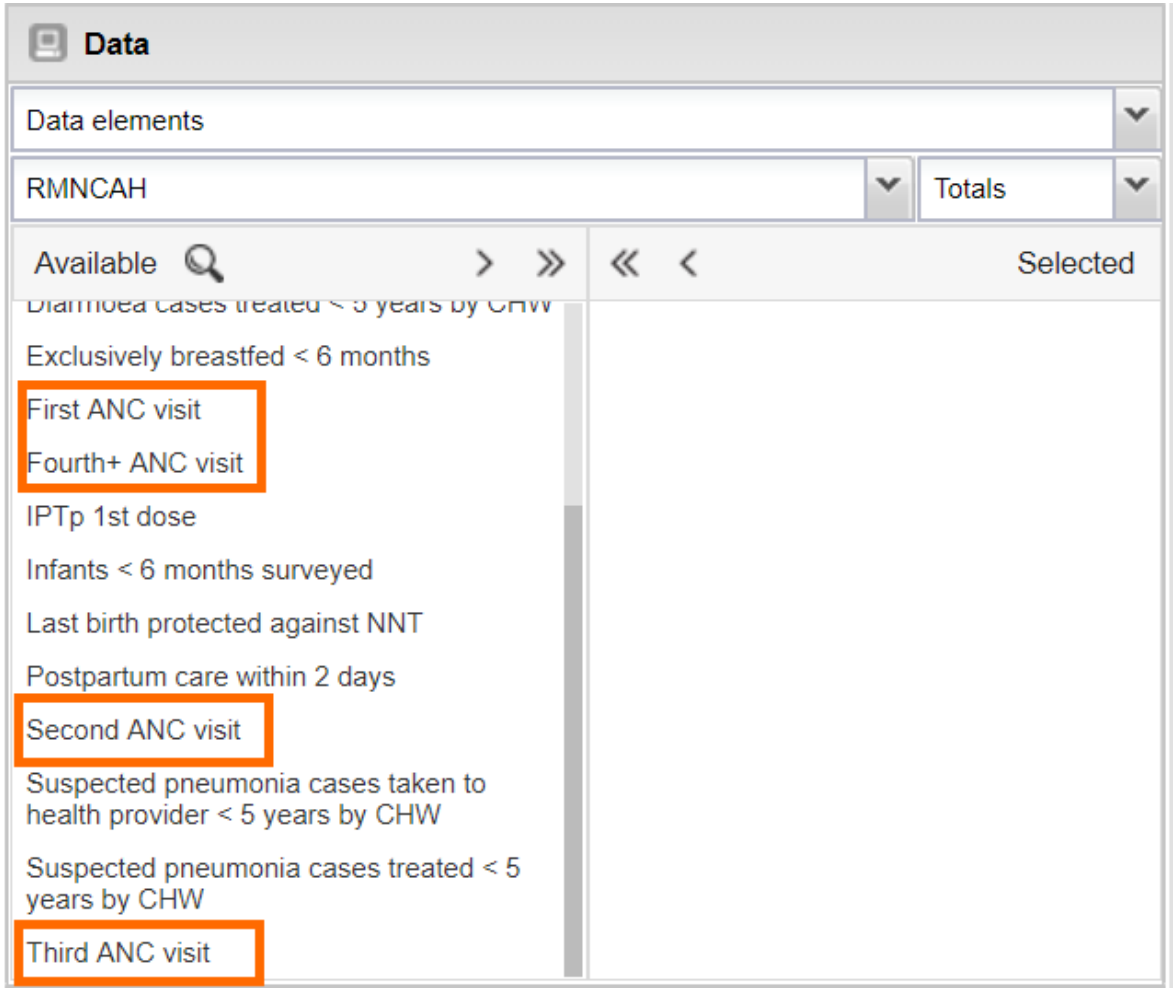
Lesson #9: Ensure your underlying data catalog is organized and labeled thoughtfully

- ANC 1st visit
- ANC 2nd visit
- ANC 3rd visit
- ANC 4th visit

VS.

- First ANC visit
- Second ANC visit
- Third ANC visit
- Fourth+ ANC visit





Lesson #10: Plan for a lot of iteration

Initial dashboard development typically requires revisions:

- The central-level can't anticipate what sub-national users need
- The central-level is mostly drawing output inspiration from the reports they submit to WHO, donors, etc.
- We don't always get to spend time with sub-national users to understand data use needs
- When we do spend time with end users to solicit design feedback or for user testing, the quality of feedback is low because they don't really know what they want/need yet either

We now plan for a LOT of dashboard iteration – data priority #1 is to get people to build trust in the data (by focusing their attention data quality and guiding action accordingly). As trust in the data forms, users begin to think of better questions and figure out what they need to see.

Pay attention to the random ad-hoc analyses you, country team members, or program staff are engaging in: How often are they exporting data into Excel and generating outputs that should be reviewed routinely? What are they using those outputs for, and is that something a dashboard should be replacing?

Mapping your dashboard journey: You can use this checklist to assess your current stage and next steps.

Stages of Dashboard Introduction and Uptake	Indicator	Status
In initial post-rollout stages, we typically see: 1. Very poor monitoring of incoming data for quality 2. Limited use of dashboards and a continued reliance on exporting data for analyses 3. Poor understanding of data definitions **Medium-term we typically see:** 1. A lot of dashboard iteration as we better understand data use needs by different user profiles at different health system levels 2. A need for data use/data review meeting guides linked to dashboard outputs **Longer-term we typically see:** 1. A desire for automated alerts and algorithms, but a lot of coordination needed to implement (mapping who gets alerted, when, by what trigger, how) 2. Increased attention on more creative ways of disseminating offline dashboards and bulletins	Dashboards developed, tailored and validated for central-level needs specifically	Y/N
	Dashboards developed, tailored and validated for L2/L3 (province, region, district, health zone) needs specifically	Y/N
	Dashboards developed, tailored and validated for health facility / CHW needs specifically	Y/N
	Dashboards are made available to end users in an offline format	Y/N
	Static bulletins/reports generated and sent to users; push bulletins/reports automatically sent to users	Y/N
	Data use guides exist and are explicitly and clearly linked to dashboards	Y/N
	Data dictionary available to users	Y/N
	Indicator/variable audit conducted to ensure all indicators and variables are accurately and intuitively labeled + calculations are correct (i.e., well-organized data catalog)	Y/N
	Dashboards actively used in data review meetings	Y/N
	Alerts/notifications configured to flag data quality issues or coverage issues	Y/N

4 SUPPORTING RESOURCES

Example of dashboard planning

- Sample NTD database dashboard planning
  - **Original purpose:** Used to map out the indicators and format to be included in dashboards for an NTD database.
  - **Features:** Shows different views and key data aspects that must be considered when dashboard planning.